Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Service Rules and Procedures to Govern the	)	
Use of Aeronautical Mobile Satellite Service	)	IB Docket No. 05-20
Earth Stations in Frequency Bands Allocated	)	
to the Fixed Satellite Service	)	
	)	

COMMENTS OF INTELSAT, LTD.

Intelsat, Ltd. ("Intelsat") files these comments in response to the Commission's Notice of Proposed Rulemaking ("NPRM") in the above-captioned proceeding.[1]

I. The Commission Should Not Afford Primary Status To AMSS Operations In The FSS Ku-band Downlink

The Commission proposes to establish a new non-Federal government footnote for the 11.7-12.2 GHz band to indicate that aircraft earth station ("AES") terminals in the Aeronautical Mobile Satellite Service ("AMSS") may operate with FSS space stations.[2] Intelsat agrees with the Commission that it is important to clearly reflect in the FCC's rules the various types of operations that use a spectrum band. Thus, Intelsat supports inclusion of a new footnote indicating that mobile receivers may operate in this band.

Intelsat disagrees, however, with the proposed text of non-Federal government footnote NGyyy. Specifically, Intelsat disagrees with the type of protection proposed to

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[1] *Service Rules and Procedures to Govern the Use of Aeronautical Mobile Satellite Service Earth Stations in Frequency Bands Allocated to the Fixed Satellite Service*, Notice of Proposed Rulemaking, 20 FCC Rcd 2906 (2005) ("NPRM").
[2] *See id.* at ¶15.

be afforded to AES terminals operating in the United States in the 11.7-12.2 GHz band[3] -- namely, protection on a primary basis.

First, the qualifying provision that the AES terminals operate "under the same parameters as earth stations in the fixed-satellite service" is vague and, if it includes transmission parameters, intrinsically impossible to comply with, given the mobile nature of the receive terminals that will typically cross several contours of the interfering satellite's transmit beam(s) as the aircraft moves.

Moreover, ensuring the protection of AES terminals would require taking them into account in future coordination, which would burden satellite operators with the need to attain an objective that does not seem to be required by the proponents of the AMSS. For example, as noted in the NPRM, Boeing is requesting that "AMSS operations in the 11.7-12.2 GHz band continue to be authorized on a non-conforming use (*i.e.*, non-protected) basis" and argues that "AMSS downlinks can operate effectively on a non-protected basis." Boeing even adds that non-conforming use "provides AMSS systems with flexibility to operate in different frequency bands in different administrations."[4]

For these reasons, Intelsat believes that AES terminals in the AMSS should operate under whatever protection conditions are afforded to earth stations coordinated for the satellites they operate with, and should not be taken into account in coordination of FSS networks.[5]

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[3] *See id.* at ¶31.
[4] *See id.* at ¶17.
[5] Intelsat agrees with the Commission's proposal to authorize AMSS on a non-conforming use basis in the FSS extended Ku-band as well, both domestically and internationally. *See id.* at ¶18. This would give AMSS proponents more alternatives for the provision of the service, while simultaneously protecting other authorized band users.

II. Uplink Off-axis E.I.R.P Limits Set Forth In Coordination Agreements Should Govern Operation Of AES Terminals

Intelsat agrees with Boeing that AMSS systems should be designed, coordinated and operated in such a manner that the aggregate uplink off-axis e.i.r.p. density levels produced by all simultaneously co-frequency transmitting AES terminals do not exceed the levels coordinated for the FSS satellite networks used.[6] Moreover, these limits should not be exceeded under the worst pointing inaccuracies expected in the highly mobile/unstable operating environment, and there should be an automatic shut-off mechanism in the network should that ever happen.

Although the limits derived from existing Part 25 rules are the normal starting point for protecting satellites licensed by the FCC for operation in a two-degree environment, these limits should not override those contained in operator-to-operator coordination agreements, as the Commission appears to suggest in paragraph 35 of the NPRM. There are satellite networks, both licensed by the FCC and by other administrations, with coordinated uplink e.i.r.p. off-axis density limits that are different from those contained in Part 25, and for which Part 25 limits may not ensure adequate protection or may be overly restrictive. For the latter cases, the Commission should rely on operator-to-operator agreements through a certification process that is discussed below.

Additionally, Intelsat is of the view that, once the AES antenna pointing requirements suggested in paragraph 41(i) are adopted, there is no need to start the mask proposed in paragraph 35 of the NPRM at 1° for protection of satellites licensed under the Commission's two-degree spacing rules. Instead, Intelsat believes the relaxation of

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[6] *See id.* at ¶34.

the starting angle to 1.5°, as has been done in other recent proceedings involving revisions to Part 25[7] would also be adequate in the case of AES terminals.

III. The Commission Should Permit Minor Variations In Antenna Performance

Intelsat agrees with the Commission's proposal to permit minor variances in the off-axis e.i.r.p. density values to account for variations in antenna performance to the extent that these variances are permitted today in Section 25.209(a) of the Commission's rules.[8] Satellites licensed under the two-degree spacing rules already take into account the possibility of such limited variances for off-axis angles greater than 7° for fixed terminals. As such, this provision, coupled with the –14 dBW/4 kHz antenna input power density limit and pointing accuracy requirements, should not raise concerns with adjacent satellite operators.

IV. AMSS Receive Antenna Performance Information Is Unnecessary

Intelsat agrees with Boeing that if the AMSS receivers will operate on an unprotected basis in the 11.7-12.2 GHz band (or in the extended downlink Ku-band, for that matter), nothing is gained by requiring the submission, in the license application, of AES downlink performance standards.[9]

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[7] *2000 Biennial Regulatory Review – Streamlining and Other Revisions of Part 25 of the Commission's Rules Governing the Licensing of, and Spectrum Usage by, Satellite Network Earth Stations and Space Stations*, Sixth Report and Order and Third Further Notice of Proposed Rulemaking, 20 FCC Rcd 5593 (2005).
[8] *See* NPRM at ¶38.
[9] *See id.* at ¶39.

V. In Cases Not Governed By Part 25, The Commission Should Require Evidence Of Operator-to-Operator Agreements

As indicated above, Intelsat believes that operator-to-operator coordination agreement limits should be used for licensing AMSS networks operating with satellites not licensed under the FCC's two-degree spacing rules (U.S. or non-U.S.) or for the cases of AMSS networks operating with satellites licensed under the FCC's two-degree spacing rules, but where the operators have reached agreement for operations at levels in excess of those contained in Part 25. For these cases, the Commission should require the submission, in the license application, of evidence of operator-to-operator agreements.

In cases where both the satellite with which the AES terminals will operate and the adjacent satellite of another operator are U.S. licensed, the Commission should require a certification signed by both operators, given that any applicable agreements for operation at higher levels are typically reached on a case-by-case basis rather then through general coordination agreements. For all other cases, however, coordination agreements are the norm and, therefore, certification by the operator of the satellite used by the AES terminals should suffice and avoid the need for a new contact between the concerned satellite operators.

VI. Antenna Pointing Accuracy Information Should Be Included In The License Application

Given the nature of the proposed service and the high degree of mobility of the AES terminals, Intelsat fully supports the inclusion of all items described in paragraph 41 of the NPRM in the AMSS license application. AMSS proponents should be required to comply with these requirements and demonstrate how the requirements will be met so

that interested parties can review the material in the Public Notice phase of the licensing process.

VII. The Commission Should Adopt A Blanket Licensing Approach

Intelsat agrees with Boeing's argument in favor of the adoption of a blanket licensing approach, subject to the conditions described in paragraph 48 of the NPRM. However, as pointed out in section II above, the e.i.r.p. limits should to be satellite-specific given the different circumstances under which coordination is achieved for different satellites and the number of different satellites the AES terminals may operate with depending on their specific location at any given time.

VIII. The Commission Should Require Tracking Of AES Terminals

Intelsat fully supports the Commission's proposals contained in paragraph 54 of the NPRM. The high mobility of the AES terminals adds another degree of difficulty in the interference resolution process and, therefore, keeping track of the location of the AES terminals increases the likelihood of solving interference problems. As long as the information is maintained by the Commission, Intelsat sees no need to make it publicly available.

IX. Operations Over International Waters Should Be Within Coordinated Limits

As explained in section II above, Intelsat supports the adoption of a process of having the AMSS license applicant certify that the operators of all satellites to be accessed by the AES terminals over international waters have confirmed that the

proposed AMSS operations will be within the coordinated limits.[10] The certification process should follow the procedures described in section V above. Mere certification of compliance with the limits derived based on Part 25 of the Commission's rules, as explained above, is not sufficient to ensure protection of adjacent satellites not licensed according to the FCC's two-degree spacing rules and may be either over-restrictive or insufficient, depending on the specific satellites involved and on the limits contained in the coordination agreement.

X. Operations Over the U.S. Under RR 4.4 Should be Governed by U.S. Rules

Intelsat agrees with the Commission that compliance with U.S. rules should be required for operation of foreign-licensed AES terminals under RR 4.4 over the U.S. territory.[11] If strict requirements such as pointing accuracy, tracking of terminals and e.i.r.p. density limits are not enforced, it will be very difficult to resolve any cases of unintended interference.

Conditions imposed by other administrations on their licensees may or may not be thorough enough to fully protect operators of satellites adjacent to those used by licensed

[10] *See id.* at ¶59.
[11] *See id.* at ¶66.

AES terminals. The Commission's proposal, therefore, would go a long way to minimize the possibility of interference events and to resolve difficulties if they occur.

Respectfully Submitted,

Intelsat, Ltd.

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July 05, 2005